



SEQUENCE LISTING

A
<110> Anderson, Christen M.
Clevenger, William

<120> COMPOSITIONS AND METHODS FOR REGULATING
ENDOGENOUS INHIBITOR OF ATP SYNTHASE, INCLUDING
TREATMENT FOR DIABETES

<130> 660088.435C2

<140> US
<141> 2002-02-27

<160> 73

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<400> 10
Arg Lys Lys Arg Arg Gln Arg Arg
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21

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<211> 324
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<213> Rattus norvegicus

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60

120

cgagaagctg gtggggcctt cggaaacga gagaaggctg aagaggatcg gtacttccga 180
 gagaagacta gagagcagct ggctgccttg aagaagcacc atgaagatga gattgaccac 240
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 tacctaaaga atagttagca ttga 324

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 <213> Rattus norvegicus

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 1 5 10 15
 Met Arg Val Leu Gln Thr Arg Gly Phe [Gly Ser Asp Ser Ser Glu Ser
 20 25 30
 Met Asp Ser Gly Ala Gly Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly
 35 40 45
 Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg
 50 55 60
 Glu Gln Leu Ala Ala Leu Lys Lys His His Glu Asp Glu Ile Asp His
 65 70 75 80
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 85 90 95
 Lys Lys Ile Lys Tyr Leu Lys Asn Ser Glu His]
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Seq ID 73

<210> 14
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 caaacccgag gcttc 75

<210> 15
 <211> 509
 <212> DNA
 <213> Mus musculus

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 gaaaaggctg aagaggatcg gtacttccga gagaagacta aagaacatcg ggctgcctg 240
 aggaaaacacc atgaagatga gattgaccac cattcgaagg agatagagcg tctgcagaag 300
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 gtcggccct cacagagtgg cccgtatcac tccccacgtc tgttagacaca tggctttgaa 420
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<213> Mus musculus

<400> 16

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	20					25							30		
Met	Asp	Thr	Gly	Ala	Gly	Ser	Ile	Arg	Glu	Ala	Gly	Gly	Ala	Phe	Gly
	35					40					45				
Lys	Arg	Glu	Lys	Ala	Glu	Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr	Lys
	50					55				60					
Glu	Gln	Leu	Ala	Ala	Leu	Arg	Lys	His	His	Glu	Asp	Glu	Ile	Asp	His
	65					70				75			80		
His	Ser	Lys	Glu	Ile	Glu	Arg	Leu	Gln	Lys	Gln	Ile	Asp	Arg	His	Lys
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Lys	Lys	Ile	Gln	Gln	Leu	Lys	Asn	Asn	His						
						100				105					

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<213> Artificial Sequence

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<223> PCR primer

<400> 17

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23

<210> 18

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 18

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25

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<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 19

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<211> 34

<212> DNA

<213> Artificial Sequence

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<400> 20

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34

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<213> Artificial Sequence

<220>

<223> Tat-derived cellular targeting sequence

<400> 21

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33

<210> 22

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Tat-derived cellular targeting sequence

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Arg Tyr Gly Arg Lys Lys Arg Arg Gln Arg Gly
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<210> 23

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 23

tgagctcagg atatggcagg aagaagcgga gacagagagg aggctcgg

48

<210> 24

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 24

atataagctt tcaatgctca ctattcttta ggta

34

<210> 25

<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Polypeptide consisting of amino acids 22-46 of the
mature form of rat IF1

<400> 25
Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys
1 5 10 15
Thr Arg Glu Gln Leu Ala Ala Leu Lys
20 25

A
<210> 26
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Polypeptide consisting of amino acids 42-58 of the
mature form of rat IF1

<400> 26
Leu Ala Ala Leu Lys Lys His His Glu Asp Glu Ile Asp His His Ser
1 5 10 15
Lys

<210> 27
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Cellular transport sequence

<400> 27
Arg Lys Lys Arg Arg Gln Arg
1 5

<210> 28
<211> 25
<212> PRT
<213> Rattus norvegicus

<400> 28
Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly
1 5 10 15
Met Arg Val Leu Gln Thr Arg Gly Phe
20 25

<210> 29
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<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 29

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu
20 25 30
Lys Lys

~~✓~~

<210> 30

<211> 20

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<213> Artificial Sequence

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<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 30

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
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20

<210> 31

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

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Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu
1 5 10 15
Asp Arg Tyr Phe
20

<210> 32

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 32

Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp
1 5 10 15
Arg Tyr Phe Arg
20

<210> 33

<211> 20

<212> PRT

<213> Artificial Sequence

~~220~~

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 33

Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg
1 5 10 15
Tyr Phe Arg Glu
20

<210> 34

<211> 20

<212> PRT

<213> Artificial Sequence

~~220~~

<223> Synthetic peptide fragment derived from rat IF1 sequence.

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Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr
1 5 10 15
Phe Arg Glu Lys
20

<210> 35

<211> 20

<212> PRT

<213> Artificial Sequence

~~220~~

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 35

Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe
1 5 10 15

Arg Glu Lys Thr
20

<210> 36
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1
sequence.

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<400> 36
Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg
1 5 10 15
Glu Lys Thr Arg
20

<210> 37
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
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sequence.

<400> 37
Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu
1 5 10 15
Lys Thr Arg Glu
20

<210> 38
<211> 20
<212> PRT
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sequence.

<400> 38
Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys
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Thr Arg Glu Gln
20

<210> 39
<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

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Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr
1 5 10 15
Arg Glu Gln Leu
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~~(D)~~ <210> 40

<211> 20

<212> PRT

<213> Artificial Sequence

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<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 40

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1 5 10 15
Glu Gln Leu Ala
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<210> 41

<211> 20

<212> PRT

<213> Artificial Sequence

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<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 41

Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu
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Gln Leu Ala Ala
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<210> 42

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 42

Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln
1 5 10 15
Leu Ala Ala Leu
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<210> 43

<211> 20

<212> PRT

<213> Artificial Sequence

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<223> Synthetic peptide fragment derived from rat IF1
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 <400> 43

Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu
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Ala Ala Leu Lys
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<210> 44

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 44

Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala
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Ala Leu Lys Lys
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<210> 45

<211> 11

<212> PRT

<213> Artificial Sequence

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<223> Synthetic peptide fragment derived from rat IF1
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<400> 45

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys
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<212> PRT
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<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 46
Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg
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~~✓~~
<210> 47
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 47
Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu
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<210> 48
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<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 48
Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys
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<210> 49
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 49
Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala
1 5 10 15

<210> 50
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<212> PRT
<213> Artificial Sequence

<220>
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sequence.

<400> 50
Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15

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<210> 51
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
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sequence.

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Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
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<210> 52
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1
sequence.

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1 5 10 15
Glu Asp

<210> 53
<211> 19
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 53
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1 5 10 15
Glu Asp Arg

<210> 54

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 54

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr
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<210> 55

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 55

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe
20

<210> 56

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 56

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15

Glu Asp Arg Tyr Phe Arg
20

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<212> PRT
<213> Artificial Sequence

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sequence.

<400> 57
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1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu
20

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<210> 58
<211> 24
<212> PRT
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sequence.

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Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys
20

<210> 59
<211> 25
<212> PRT
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<220>
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sequence.

<400> 59
Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys Thr
20 25

<210> 60
<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

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Ser	Ile	Arg	Glu	Ala	Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu
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Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr	Arg						
				20				25							

<210> 61

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 61

Ser	Ile	Arg	Glu	Ala	Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu
1			5					10						15	
Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr	Arg	Glu					
				20				25							

<210> 62

<211> 28

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 62

Ser	Ile	Arg	Glu	Ala	Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu
1			5					10						15	
Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr	Arg	Glu	Gln				
				20				25							

<210> 63

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 63

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu
20 25

<210> 64

<211> 30

<212> PRT

<213> Artificial Sequence

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<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 64

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala
20 25 30

<210> 65

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 65

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala
20 25 30

<210> 66

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 66

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu
20 25 30

<210> 67
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1
sequence.


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Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
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Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu
20 25 30
Lys

<210> 68
<211> 35
<212> PRT
<213> Artificial Sequence

<220>
<223> Epitope tag sequence.

<400> 68
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Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Lys Asp
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Pro Ser Ser
35

<210> 69
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Organellar targeting sequence

<400> 69
Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly
1 5 10 15
Met Arg Val Leu Gln Thr Arg Gly Phe
20 25

<210> 70
<211> 13

<212> PRT
<213> Artificial Sequence

<220>
<223> Cellular transport sequence

<400> 70
Gly Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Gly
1 5 10


<210> 71
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Fusion protein

<400> 71
Met Gly Gly Ser His His His His His Gly Met Ala Ser Met Thr
1 5 10 15
Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys Asp
20 25 30
Pro Ser Ser Gly Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Gly
35 40 45
Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly
50 55 60
Met Arg Val Leu Gln Thr Arg Gly Phe Ser Ile Arg Glu Ala Gly Gly
65 70 75 80
Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu
85 90 95
Lys Thr Arg Glu Gln Leu Ala Ala Leu Lys Lys
100 105

<210> 72
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<212> DNA
<213> Artificial Sequence

<220>
<223> Nucleotide that codes for fusion protein.

<400> 72
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aagcggagac agagaaggag aggtatggca ggctcggcgt tggcggttcg ggctcggctc 180
ggtgtctggg gtatgagggt cctgcaaacc cgaggcttct ccatccgaga agctgggtggg 240
gccttcggga aacgagagaa ggctgaagag gatcggtact tccgagagaa gactagagag 300
cagctggctg ccttgaagaa g 321

<210> 73

<211> 79

<212> PRT

<213> Rattus norvegicus

<400> 73

Gly Ser Asp Ser Ser Glu Ser Met Asp Ser Gly Ala Gly Ser Ile Arg
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Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg
20 25 30
Tyr Phe Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu Lys Lys His His
35 40 45
Glu Asp Glu Ile Asp His His Ser Lys Glu Ile Glu Arg Leu Gln Lys
50 55 60
Gln Ile Glu Arg Lys Lys Ile Lys Tyr Leu Lys Asn Ser Glu His
65 70 75
